

NINETY FIVE PERCENT:
AN EVALUATION OF LAW, POLICY, AND PROGRAMS TO
PROMOTE SEAT BELT USE IN WASHINGTON STATE

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ABSTRACT

Seat belt use in Washington State was 83% in 2001. In 2002, a series of law, policy, and program initiatives coalesced to produce a dramatic increase in seat belt use. Washington enacted a primary enforcement seat belt, the Chief of the Washington State Patrol made safety belt enforcement one of the core missions of that agency, and Washington participated in the national Memorial Day "Click it or Ticket" (CIOT) program during May 2002 and continued the program into 2003. Evaluation of these initiatives was accomplished through observation surveys of seat belt use, analysis of seat belt violation data, and analysis of data on traffic deaths of motor vehicle occupants. The major findings were that there was a two- to three-fold increase in enforcement of the seat belt law, belt use rates increased to 93% in 2002 and again to 95% in 2003, and MV occupant fatalities decreased by 13%.

Impact on Practice and Policy: The primary seat belt law and CIOT program activities were critical factors in increasing belt use in Washington State. Media and enforcement programs targeting seat belt use can be very effective in raising the belt use rate, but a long-term commitment to continuation of these program activities is essential. Other states implementing new primary seat belt laws should consider delivering a CIOT campaign prior to the effective date of the primary law and continuing these activities during subsequent months and years.

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INTRODUCTION

Washington State enacted a “secondary” enforcement seat belt law in 1986. This secondary provision allows police to cite drivers only if they have first committed another violation. It sends a mixed message to police, i.e., that seat belt use is important enough to be mandatory but not important enough to be directly enforceable.

The first statewide observation survey of seat belt use (conducted in 1986 prior to implementation of the law) found a 36% use rate. Since then, annual observation surveys have shown fairly consistent increases in the use rate. Belt use more than doubled, reaching 80% in 1995. This increase was primarily attributable to education and training of police officers on the safety benefits of seat belts, modest increases in enforcement of the belt law, and public information/education programs. Washington State received recognition for high performance under a secondary law. However, between 1995 and 2001 further progress proved to be elusive. Observed belt use was 83% in 2001.

In 2002, a series of law, policy and program initiatives coalesced to produce a dramatic increase in seat belt use. These included the following:

1. Washington enacted a primary enforcement seat belt law with an effective date of June 13, 2002.
2. The Chief of the Washington State Patrol made safety belt enforcement one of the four core missions of that agency.
3. Washington participated in the national Memorial Day "Click it or Ticket" (CIOT) program during May-June 2002, and continued CIOT efforts into the summer months of 2002 and again in 2003.

The strategy of the Washington Traffic Safety Commission (WTSC) leading up to the primary law, the Memorial Day 2002 CIOT campaign, and subsequent activity revolved around the following:

1. Exploit the earned media opportunity created by passage of the primary safety belt law.
2. Use paid advertising to bring a strong enforcement message to the public.
3. Localize the message to the greatest extent possible (Local police chiefs and sheriffs acted as spokespersons).
4. Use paid overtime to support large-scale enforcement of seat belt violations.
5. Insure that the enforcement is highly visible, so that public perception validates what is heard in the advertising.
6. Insure that the public's actual experience with enforcement has enough impact to result in "word of mouth" communication among would-be violators.
7. Use highway signs to support the enforcement and media efforts.
8. Maintain the media/enforcement pressure long enough for seat belt use to become habitual.

CIOT project activities for the 2002 Memorial Day national effort included a major public information/education effort and the mobilization of police agencies to increase enforcement of the seat belt law. Close to a half-million dollars

(\$450,000) were allocated to paid media announcements informing the public of the new primary seat belt law and that the police would be actively enforcing the law. The paid media made strong use of radio messages, supported by television advertising. The paid media also produced more than double the exposure of the message through earned media, i.e., radio talk shows and newspaper articles and editorials.

An additional \$450,000 was used to pay for police overtime that was dedicated to seat belt enforcement. Participating agencies included the Washington State Patrol and about one-third of county sheriff and city police agencies. Anecdotal reports indicate that it was impossible to drive on Washington highways during late May and early June 2002 without seeing a police vehicle and, typically, an officer in the process of issuing a traffic citation. Overtime funding purchased more than 1,000 hours of law enforcement with 36,441 contacts – resulting in over 6,000 seat belt and child safety seat citations issued.

Washington State continued to pursue the CIOT campaign past the end of the Memorial Day 2002 national effort. This was aimed at highlighting the June 13th effective date of the new primary belt law and maintaining a high level of enforcement. The results of previous “wave” enforcement actions led us to expect a peak of belt usage followed by a fallback to a lower level as enforcement eased. We deliberately sought to avoid this through additional programs that were implemented over the next few months. These programs were highway signs, incentives to police to encourage continued enforcement of the belt law, an additional CIOT campaign at the end of the summer 2002, and another Memorial Day campaign in 2003.

During the summer of 2002, approximately 650 roadway signs were installed on state highways, county roads, and city streets displaying the message: "SEAT BELTS MUST BE WORN - \$86 FINE – CLICK IT OR TICKET!" Fluorescent yellow

was used for the CIOT line of the message and was extremely eye-catching. These signs were modified in 2003 to reflect an increase in the fine amount to \$101.

INSERT PHOTOGRAPH 1 HERE

The WTSC had previously installed highway signs during implementation of the state's 0.08 BAC per se DUI law in 1998. Those signs proved to be highly effective in bringing a safety message to the public because of the lack of competing messages and the fact that the message was seen frequently by motorists.

The second program, aimed at keeping enforcement activity at a high level following the Memorial Day CIOT campaign, was an incentive program that ran throughout the summer of 2002. It recognized individual law enforcement officers and police agencies that continued to emphasize belt enforcement. Of more importance, the intent of this program was to encourage that safety belt enforcement be part of the standard work plans of police agencies statewide. Since the State Patrol was already fully committed, the incentives were not desired by that organization.

INSERT PHOTOGRAPH 2 HERE

Incentive awards were given to motivate and recognize individual law enforcement officers who made safety belt enforcement part of their everyday work. Officers who wrote 40 safety belt citations were recognized with a 1:24 scale-model police car custom painted to match the officer's own car. The value of the model car award was equivalent to that of a typical award plaque. The program was

structured on the number of working days during the summer-time period for the average officer with the expectation of one seat belt ticket per day. The intent of this program was to make seat belt enforcement a habitual part of an officer's normal work duties. Formal participation by an agency was not required, just individual officer effort. The incentive was effective: 325 awards were earned, resulting in over 13,000 enforcement actions. Officers were not allowed to gain award recognition for patrols done on CIOT overtime, only activity on routine patrol shifts qualified. The program was specifically intended to reach officers in smaller towns and counties.

An incentive was also offered to police agencies in order to motivate police management to make seat belt enforcement an agency priority. Agencies were able to earn a \$1,000 traffic safety grant by taking 100 belt enforcement actions. This resulted in grant awards of \$140,000 to 60 agencies. Again, this was intended to encourage enforcement in rural areas where usage rates have been historically lower.

A second CIOT media and enforcement project was conducted in late August and early September of 2002 coinciding with Labor Day and continued through the opening weeks of school. The Labor Day CIOT project was about half the size of the Memorial Day project (\$550,000 vs. \$900,000) and included both public information and seat belt enforcement components. The primary advertising medium was radio.

Another wave of CIOT media and enforcement activity was conducted during May/June of 2003. This effort was somewhat scaled down from the 2002 Memorial Day project (\$750,000 vs. \$900,000, of which \$300,000 was for paid media and \$450,00 was for overtime enforcement). About the same numbers of citations were issued during the 2003 campaign compared to the 2002 CIOT program. However, this enforcement was focused on an "unbelted" population that was half

the size of the previous year's since we had converted about 50% of the non-belt users during the prior year. We are seeing an ever-increasing pressure on a smaller and smaller violator pool.

In early 2003, a citizen's initiative was circulated that aimed to repeal the primary belt law. This initiative effort fostered a great deal of news coverage of the issues surrounding seat belts and kept the issue before the public. The news media was very interested in the "model car" incentive from the previous summer, so there was extensive public discussion of this program. The initiative sponsors were unable to obtain sufficient signatures to place the measure on the ballot.

Also during 2003, several trial courts found that the state's seat belt law was vague in that it makes reference to Federal Motor Vehicle Safety Standard 208. The findings arose out of felony prosecutions that were based on discoveries made after seat belt violators were stopped. The cases are being appealed by the state and court action is expected in 2004. Again, the news media was very interested in the seat belt issue and there has been extensive news media coverage of the court cases, again keeping the issue before the public.

Finally, on July 1, 2003, the state increased traffic fines across the board. The seat belt fine was increased to \$101. While the traffic fine increase was little noticed by the general public, the WTSC exploited this opportunity by changing all of the highway signs and insuring news coverage of the change.

Evaluation of the primary law and CIOT initiatives was accomplished through observation surveys of seat belt use, data on seat belt violations/convictions, and data on traffic deaths of motor vehicle occupants.

Two statewide surveys of belt use were conducted in 2002: the first in early June prior to the effective date of the primary seat belt law, and the second in September coinciding with the Labor Day CIOT project. One statewide survey was conducted in August 2003. The Memorial Day 2002 CIOT campaign included a series of seven small-sample surveys of belt use (mini-surveys) that corresponded to different phases of the project. Four mini-surveys were conducted during the 2003 Memorial Day CIOT campaign.

Seat belt violation data were obtained from the Washington Department of Licensing. These data were monthly counts of convictions and bail forfeitures for seat belt traffic infractions reported by the courts to the Department of Licensing.

The traffic fatality data were obtained from the Washington State Fatality Analysis Reporting System (FARS) and consisted of monthly counts of the numbers of MV occupants killed in traffic crashes.

SURVEY METHODS

The statewide observation surveys were based on a probability sample of 402 roadway sites in 19 counties, while the mini-surveys used a convenience sample of 40 sites in five counties. The design and methodology for the statewide surveys comply with 1998 NHTSA rules for seat belt observation survey methodology.

Statewide survey methods.

Sample Design and Observation Sites. The survey was designed to provide a statistical estimate of the overall statewide belt use rate. The methodology was developed by a consulting firm, WESTAT Inc., under a contract with NHTSA. The

WESTAT methodology has been used for all statewide surveys of belt use in Washington from 1986 to the present. Detailed descriptions of the methodology can be found in the original WESTAT report (1986) and the 2003 Washington seat belt survey report to NHTSA (Salzberg and Thurston, 2003).

The roadways selected for inclusion in the survey are a probability sample of all road segments in the state. All 39 counties in Washington were eligible for selection in the sample. The three most populous counties in each half of the state were selected with certainty, and then six additional counties from each half of the state were selected with a probability that was proportional to the vehicle miles of travel (VMT) in each county (A 19th county with a large Hispanic population was added in 1996). Roadways were grouped into major roads (primarily state routes and interstate highways) and local roads. Road segments were clustered within sample counties and census tracts and then randomly selected with a probability proportional to VMT.

Observation Procedures. Four different types of vehicles were observed during four separate data collection periods at each of the roadway sites. The four vehicle types were passenger cars (including station wagons), pickup trucks, sport utility vehicles (SUVs), and passenger vans

Trained observers, many of whom were retired police officers, collected the survey data. The survey coordinator, also a retired police officer, trained and monitored the observers. Each roadway site was observed for 80 minutes, 20 minutes for each of the four types of vehicles. The survey personnel would typically observe 5 sites per day between the hours of 8 AM and 5 PM. Roadways were observed from the shoulder or sidewalk adjacent to the road, or from an overpass, if possible.

Survey personnel were instructed to observe shoulder belt use of drivers and right-front seat passengers. On multi-lane roads, survey personnel were instructed to

observe only as many lanes of traffic as feasible based on traffic flow and vehicle speeds. The number of lanes of travel and the number actually observed were recorded on the data collection sheet. Traffic was observed in one direction of travel only, and that direction was specified in the sampling plan.

Belt use was recorded using a counting device with four separate counters. One of the counters was incremented for each driver seen using a shoulder belt and a second counter was incremented for each driver seen not using a belt. Passenger belt use was recorded similarly on the third and fourth counters. Mis-use of shoulder belts, such as wearing them under the arm, was counted as “not using”.

Cases where the observer was “unsure” were tallied on a separate data sheet and were excluded from the data analysis. Situations when an observer is unsure typically result from sun glare or tinted windows on a vehicle.

Seat Belt Use Rate Estimation Procedure. The belt use rates derived from the survey data are weighted estimates of the amount of time on the road that vehicle occupants were seen using belts divided by the total time that occupants were observed. The ratio of belted occupants to total occupants observed was adjusted by an estimate of vehicle time on the road for each road site. Time on the road was computed by the length of the road segment divided by the approximate speed of the vehicles observed. The estimates were also adjusted by a ratio of the actual number of lanes observed to the number of lanes in the direction of travel that was observed. Finally, the rate estimates were weighted by the probability of each site having been selected for inclusion in the sample.

Mini-survey methods.

The observation procedures for the mini-surveys were identical to those used in the statewide surveys. Observers counted shoulder belt use or non-use at each site during 40-minute periods (10 minutes for each of the four types of vehicles). All mini-surveys surveys were conducted on the same days of the week, and the individual sites were observed at the same times of the day.

The mini-surveys were conducted in five counties and included 40 roadway sites, eight per county. The sites were a convenience sample drawn from the 402 sites in the statewide survey and were selected to give a cross-section of urban and rural areas from Eastern and Western Washington and state highways, interstate highways, and local roads (city streets and county roads).

Mini-surveys were conducted for the 2002 Memorial Day CIOT project during the baseline phase, the media phases, enforcement phase, and the post-enforcement phase. In addition, two post-project follow-ups were conducted after one month and two months. Similarly, four mini-surveys during the 2003 Memorial Day CIOT were conducted for the baseline, media, enforcement, and post-enforcement phases.

RESULTS

Seat Belt Use Rates from CIOT Mini-surveys.

Seat belt use rates from the 2002 Memorial Day CIOT mini-surveys are shown in Table 1. The numbers of observations in these surveys ranged from about 5,500 to 6,000. Rates were calculated as simple ratios of belted occupants divided by total occupants observed.

The rates were consistent at about 80 to 81% for the baseline and media phases of the project. For comparison, the rate for the same 40 sites in the 2001 statewide survey was 81.4%. During the enforcement phase belt use increased to 88.5%

and remained high at 89.5% in the post-enforcement phase. The one-month follow-up survey showed a 91.2% rate, and belt use continued at a high rate of 92.1% at the two-month follow-up.

INSERT TABLE 1 HERE

Table 2 shows belt use rates from mini-surveys conducted during the 2003 Memorial Day CIOT project. The baseline rate was 90.6% and increased slightly to 92.5% over the course of the media and enforcement phases. These rates are roughly equivalent to those found in the follow-up phases of the 2002 CIOT project.

INSERT TABLE 2 HERE

Statewide Seat Belt Survey Results.

Table 3 shows the weighted use rates for the 2002 and 2003 Washington State seat belt observation surveys. The belt use rate was 90.7% in June 2002 with a 95 percent confidence interval of +/- 0.84%. The September 2002 rate was 92.6% with a 95 percent confidence interval of +/- 0.73%. The rate for the August 2003 survey was 94.75% with a 95 percent confidence interval of +/- 0.92%. For comparison, the use rates from the 1998 through 2001 surveys were 79.1%, 81.1%, 81.6%, and 82.6%, respectively.

INSERT TABLE 3 HERE

Seat Belt Violation Data.

Convictions and bail forfeitures for all traffic offences are reported by the courts to the Department of Licensing (DOL) and entered onto individual driver records. Data on monthly counts of seat belt violations were obtained from DOL for January 2001 through June 2003 (the counts were based on the month the violation occurred, not the month of conviction). These data included both driver and passenger seat belt violations (child restraint violations were excluded).

Figure 1 shows that the numbers of seat belt violations were fairly stable during 2001 at between 4,000 to 5,000+ each month. During May and June of 2002, coinciding with the Memorial Day CIOT campaign, violations increased dramatically to about 10,000 per month. Then, during July and August, the numbers of violations increased again to roughly 15,000 per month. Seat belt enforcement doubled just prior to the primary seat belt law and the Memorial Day CIOT campaign, and then tripled during the first few months under the primary law. It was during this time that the belt enforcement incentive programs were offered to police agencies and the second wave of the CIOT program occurred. Belt violations dropped back to a lower level in the last few months of 2002, but still were higher than the 2001 baseline. The first six months of 2003 show an increasing trend of belt enforcement from about 8,000 to 10,000 violations per month. The third wave of the CIOT program occurred during May and June of 2003.

INSERT FIGURE 1 HERE

Motor Vehicle Occupant Fatalities.

Traffic fatality data were obtained from the Washington State FARS. Monthly counts of the numbers of MV occupants killed in traffic crashes for the period of January 2002 through July 2003 were compared with the monthly averages for the years 1996 through 2001. The data for 2003 through July are preliminary as of October 2003. There may be a few additional delayed reports of traffic deaths that are not counted in the present data. Figure 2 shows that MV occupant deaths for the first five months of 2002 (January through May) were comparable with the prior six-year average. In fact, there were seven more MV occupant deaths during this five-month period of 2002 than in prior years.

However, beginning in June 2002, the monthly numbers of MV occupant fatalities declined below the prior monthly averages for every month except two. Overall, there were 84 fewer occupant deaths during the 14 months from June 2002 through July 2003, or an average of six fewer fatalities per month than in previous years. On a calendar year basis, this represents a reduction of 72 MV occupant fatalities, or a 13.4% decrease compared to the average yearly totals over the prior six years.

INSERT FIGURE 2 HERE

DISCUSSION

Seat belt use in Washington State, as measured by statewide observation surveys, increased by 12 percentage points between 2001 and 2003, reaching the highest level in the country at 95 percent. It is very likely that this increase is attributable to the combined effects of the primary seat belt law and Click It or Ticket program

activities. Support for this assertion is provided by the results of the mini-surveys from the 2002 CIOT project.

The baseline rate for seat belt use was 81% in late April 2002, just prior to the beginning of media campaign, which was almost identical to the 2001 rate at the same survey sites. Throughout the month of May the public was presented with an onslaught of messages informing that seat belt violators would be ticketed and that enforcement would continue into the future since the police would now be able to stop a motorist solely for not wearing a seat belt. The use rate remained at about 81% during the media phases of the CIOT project (May 9 and 16), and then jumped to 88.5% in the May 30 survey. The enforcement phase of the CIOT project began on May 20 and continued until June 2. To attribute this increase of 7.5% to some other extraneous factor would be difficult. The fact that the increase in belt use was immediate and simultaneous with the enforcement effort is compelling evidence. The onset of belt enforcement appears to be the critical factor; the announcement of impending enforcement was not enough.

Belt use remained high at 89.5% on June 6 following the enforcement phase of the project, and continued to increase through July and August to 92.1%. Although federal funding for the CIOT project ended in June, the WTSC devoted state resources and federal 402 and 405 funds to maintaining high levels of police visibility and seat belt enforcement combined with occasional media messages throughout the summer months. In addition, the public received constant reminders about seat belts through the highway signs that reinforced the Click It or Ticket message.

Previous CIOT projects conducted in other states have found increases in belt use of roughly 9% during and immediately following the enforcement phase, but typically the rates have dropped back to about 2% above baseline a few months later. This did not occur in Washington because of efforts to keep the CIOT

message and belt enforcement activities strong in the subsequent months of 2002 and into 2003.

The primary seat belt law was still under consideration in the legislature when Washington was selected to participate in the 2002 National CIOT project, but the outcome of the final vote on the bill was far from certain. When the bill did pass there was discussion within the WTSC about opting out from the CIOT project because of concern that CIOT media messages might create a negative reaction from legislators, particularly those who had strongly opposed the bill. The WTSC was also concerned that CIOT might detract from informing the public about the new primary law. However, a consensus was reached that media messages concerning both the new primary law and CIOT could be fashioned in such a way as to be mutually reinforcing. Essentially, the May 2002 CIOT mobilization gave the state a "running start" at implementation of the new primary law.

Thus, during May 2002 the public was put on notice that stronger enforcement of the seat belt law was coming on June 13, and that the police would be getting a head start by ticketing belt violators before the effective date. This enforcement was done under the existing secondary law. Complaints about the early start were addressed by pointing out that the only change to the law was the method of enforcement; seat belts had been required in the state since 1986. Paid advertisements and radio talk shows debating government infringement of civil liberties insured that the public was receiving the message about enforcement of the seat belt law. Anecdotal reports suggest that close to 100% of Washington residents were aware of the "Click It or Ticket" tag line.

Finally, the seat belt policy and program initiatives in Washington appear to be associated with reductions in motor vehicle occupant fatalities. The improvement in belt use found since enactment of the primary law and the CIOT program activities has coincided with fewer occupant deaths compared to the prior six-year

average death toll. The numbers of monthly occupant fatalities for the first five months of 2002 were slightly higher. However, from June 2002 through July 2003 the MV occupant deaths were 13% lower than in prior years.

As encouraging as this death toll reduction has been, it is disappointing that it has not been larger given that Washington has converted three-quarters of non-belt users to belt users between 2001 and 2003. We previously studied the relationship between observed seat belt use rates and the usage rates of fatally injured MV occupants (Salzberg et al, 2002). There appears to be a higher risk of involvement in fatal collisions for unbuckled motorists (independent of the fact that they do not have the protection from belts when they are involved in a serious collision). This risk associated with unbuckled occupants becomes even higher as observed belt use moves into the 90% range and above. It appears that motorists with the highest risk of fatal crash involvement are the last to be converted to belt users.

Figure 3 shows a relative risk curve that is derived from the model we developed in our earlier paper. The risk of fatal collisions for unbuckled motorists is more than twice that of belt users when the observed use rate is 80%, but is more than six times greater as the belt use rate approaches 95%. This relative risk curve essentially asserts that the last few unbuckled motorists are extremely likely to be involved in collisions that are not survivable, and thus, will continue to be over-represented among fatally injured MV occupants.

With belts used by 95% of motorists in Washington, the belt use rate for MV occupant fatalities from the FARS data is just above 50% for 2003. The 5% of non-users contribute half of the MV occupant deaths! Many of these deaths are plainly preventable, justifying continued and increasing enforcement pressure on the diminishing pool of seat belt offenders.

INSERT FIGURE 3 HERE

CONCLUSIONS – IMPACT ON PRACTICE AND POLICY

Media and enforcement programs targeting seat belt use can be very effective in raising the belt use rate, but a long-term commitment to continuation of these program activities is essential.

The primary seat belt law was a critical factor in increasing belt use in Washington State. The baseline use rate in Washington was higher than it has been in other States that have adopted primary laws. This would suggest that increases in belt use associated with primary laws are obtainable regardless of the baseline rate under a secondary law.

Other states implementing new primary seat belt laws should consider delivering a Click It or Ticket campaign prior to the effective date of the primary law and continuing these activities during subsequent months and years.

Finally, the higher seat belt use rate in Washington appears to be associated with substantial reductions in the death toll among motor vehicle occupants.

REFERENCES

Salzberg P, Yamada A, Saibel C, & Moffat J. Predicting Seat Belt Use in Fatal Motor Vehicle Crashes from Observation Surveys of Belt Use. Accident Analysis and Prevention, 2002, 34, 139-148.

Salzberg P & Thurston R. Seat Belt Use Rates in Washington State, 2003. Olympia: Washington Traffic Safety Commission, October 2003.

WESTAT, Inc. Washington State Observational Survey of Safety Belt Usage. Rockville, MD: WESTAT, Inc., 1986. (NHTSA Contract No. DTNH22-85-D-07306)

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